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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,538	09/19/2003	Koji Hosono	81790.0298	4277
26021	7590	09/28/2004	EXAMINER	
HOGAN & HARTSON L.L.P. 500 S. GRAND AVENUE SUITE 1900 LOS ANGELES, CA 90071-2611			WEISS, HOWARD	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 09/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/664,538	Applicant(s) HOSONO ET AL.	
	Examiner Howard Weiss	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 31-62 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-62 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/274,438.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>0903</u> . | 6) <input type="checkbox"/> Other: _____  |

Attorney's Docket Number: 81790.0298

Filing Date: 9/19/03

Continuing Data: Continuation of 10/274,438 (10/18/02 now U.S. Patent No. 6,649,945)

Claimed Foreign Priority Date: 8/20/02 (JPX)

Applicant(s): Hosono et al. (Nakamura, Imamiya)

Examiner: Howard Weiss

***Specification***

1. The disclosure is objected to because of the following informalities: On Page 1 of the Specification as amended, ---now U.S. Patent No. 6,649,945--- should be inserted after "October 18, 2002." Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 31 to 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted Prior Art, Fuchida et al. (U.S. Patent No. 5,723,908) and Aoyama (U.S. Patent No. 6,559,485).

The admitted Prior Art show most aspects of the instant invention (e.g. Figures 1 and 2 and Specification Pages 1 to 8) including:

- a NAND memory cell array having NAND block **1** with NAND memory cells **2**
- first to fourth lines being either/or bit lines **BL** or word lines **WL**
- contact plugs **CS** having widths larger than said lines

The admitted Prior Art does not show the interval (i.e. pitch) between third and fourth lines wider than the pitch between said first and second lines, the pitch of the first and second lines being less than 0.12  $\mu\text{m}$  and the lines at different levels and dummy lines. Fuchida et al. teach (e.g. Figures 17 to 21) to have the pitch **Sg<sub>1</sub>** of third and for the lines **2a** to be wider than the pitch **Sg<sub>2</sub>** of first and second lines **2b** with said lines at different levels to perform a regular design and to supply power at more points (Column 13 Lines 19 to 24). It would have been obvious to a person of ordinary skill in the art at the time of invention to have the pitch of third and for the lines to be wider than the pitch of first and second lines with said lines at different levels as taught by Fuchida et al. in the device of the admitted Prior Art to perform a regular design and to supply power at more points.

Aoyama teach (e.g. Figures 1) to make the pitch **d1** of the lines less than 0.12  $\mu\text{m}$  (i.e. less than 1  $\mu\text{m}$ ) and to use dummy lines **40a** to effect a microloading effect (Column 5 Lines 44 to 49). It would have been obvious to a person of ordinary skill in the art at the time of invention to make the pitch of the lines less than 0.12  $\mu\text{m}$  and to use dummy lines as taught by Aoyama in the device of the admitted Prior Art to effect a microloading effect.

#### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759

F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 31 to 62 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1 to 30 of U.S. Patent No. 6,649,945 in view of the admitted Prior Art. U.S. Patent No. 6,649,945 claims most aspects of the instant invention including first and second lines with a first interval, third and fourth lines arranged with a second interval wider than the first interval; wherein the first interval is a minimum interval less than 0.12  $\mu\text{m}$ , and a maximum value of a voltage generated between the third and fourth lines is greater than a maximum value of a voltage generated between the first and second lines, contact plugs being wider the line widths, transistors and dummy lines. U.S. Patent No. 6,649,945 does not claim to have said line arrangement in a NAND memory cell array having NAND blocks with NAND memory cells. The admitted Prior Art (Figures 1 and 2 and Specification Pages 1 to 8) teach it is a common arrangement known in the art, and therefore obvious, to put lines (e.g. **BL** and/or **WL**) in a NAND memory cell array having NAND blocks **1** with NAND memory cells **2**. It would have been obvious to a person of ordinary skill in the art at the time of invention to put lines in a NAND memory cell array having NAND blocks with NAND memory cells since this is a common arrangement known in the art.

***Conclusion***

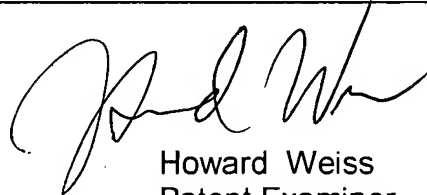
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ohsaki et al. (U.S. Patent Application No. 2003/0189224) and Shirota (U.S. Patent No. 6,274,934) show lines similar to the instant invention.
7. Paper copies of cited U.S. patents and U.S. patent application publications will cease to be mailed to applicants with Office actions as of June 2004. Paper copies of foreign patents and non-patent literature will continue to be included with office actions. These cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site ([www.uspto.gov](http://www.uspto.gov)), from the Office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197 for information on this policy. Requests to restart a period for response due to a missing U.S. patent or patent application publications will not be granted.
8. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 872-9306**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via [Howard.Weiss@uspto.gov](mailto:Howard.Weiss@uspto.gov).

Art Unit: 2814

10. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/211	9/24/04
Other Documentation: PLUS Analysis Report	9/21/04
Electronic Database(s): EAST	9/24/04

HW/hw  
24 September 2004



Howard Weiss  
Patent Examiner  
Art Unit 2814